

Regional Methods (RM) Program

Region 5 FY03-Funded RM Projects

Development of Analytical Methods for Alkylphenol Ethoxylates

Purpose: This project will complete the development of new sample preparation procedures and solid phase extraction that will reduce hazardous waste and decrease sample preparation time over that of existing methods.

Relevance: An earlier RM investigation (2000–02/03) set out to establish sources of commercially available standards of known purity for certain endocrine disrupting alkylphenolic compounds and use them to develop a method that could determine their presence and concentration in surface water and sediment. While certain areas were addressed in this earlier study, more work remains to be done for solid phase extraction which will limit hazardous waste and increase speed of analysis.

Description: The project will complete development of new sample preparation procedures and solid phase extraction that will reduce hazardous waste and decrease sample preparation time over existing alkylphenol analysis methods. A key step for biological studies will be purification of

commercially available standards of the alkylphenol/ethoxylate compounds, with confirmation of purity by mass spectrometry and elemental analysis. A qualitative and quantitative liquid chromatograph mass spectrometer (LCMS) method for nonylphenol carboxylates will be developed. Finally, the project will develop methods using gas chromatograph mass spectrometer (GCMS) and LCMS to analyze for these compounds in fish tissues and isolate which tissues and organs contain the greatest concentrations.

Funding: This project will be funded through an existing cooperative agreement.

Anticipated Product: The project will document Standard Operating Procedures with Method Detection Limits and precision and accuracy data for all methods developed or upgraded.

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